

What is claimed is:

1. A data management apparatus for managing a plurality of data which are used in order to execute an application program for providing services related to communication by a switching system, comprising:

a data field storing the plurality of data;

an address acquirer acquiring an address of the data in said data field for which an access is requested by the application program;

a lending pointer table storing at least one of pointer records having the acquired address and a pointer corresponding to the acquired address; and

a lender reading out the pointer from said lending pointer table and lending the read pointer to the application program.

2. A data management apparatus according to Claim 1, further comprising:

a reader receiving the lent pointer from the application program, reading out the address corresponding to the lent pointer from the lending pointer table, reading out the data storing the read address in said data field, and giving the read data to the application program.

3. A data management apparatus according to Claim 2, further comprising:

a deleter deleting a data from said data field; and

a record deleter deleting the pointer record having the

address of the data which is deleted by said deleter, from said lending pointer table.

4. A data management apparatus according to Claim 3, further comprising:

an invalidity informer informing the invalidation of the pointer in the pointer record which is deleted by said record deleter.

5. A data management apparatus according to Claim 2, further comprising:

a relocater relocating the data stored in said data field;  
and

an address updater detecting the address of the data which is relocated by said relocater from said lending pointer table, and updating the detected address to an address after the relocation process.

6. A data management apparatus according to Claim 5, wherein said address updater, when said reader is reading out the data on the basis of the address in the pointer record, waits the updating process of the address until said reader finishes the reading process.

7. A data management apparatus according to Claim 1, further comprising:

a record deleter, when receiving a notification indicating that the application program does not use the lend pointer from the application program, deleting the pointer record having the

lend pointer from said lending pointer table.

8. A data management apparatus according to Claim 1, wherein said data field is composed of a plurality of data setting areas, each data in said data field is stored by a single or plural data setting areas according to a size of the data, and the data management apparatus further comprises:

a data setting area management table storing information related to the use-condition of each data setting area;

an allocation controller referring to said data setting area management table, and determining at least one of empty data setting areas in order to allocate a data requested to be added; and

an adder storing the data requested to be added to at least one of the empty data setting areas which is determined by said allocation controller.

9. A data management apparatus according to Claim 8, wherein said data field holds the data in order of the address of the data setting area, and said data setting area management table holding an address of a next data setting area of a data setting area having a biggest address among the data setting areas which have been holding the data.

10. A data management apparatus according to Claim 8, wherein said data setting area management table holds a minimum address of a continuous empty area, each by the size of the continuous empty area, the continuous empty area is a single or plural empty

data setting areas which occurred in said data field by deleting the data; said allocation controller detects the minimum address of the continuous empty area corresponding to the size of data requested to be added from said data setting area management table; and said adder stores the data to be added in the continuous empty area corresponding to the detected minimum address.

11. A data management apparatus according to Claim 8, wherein said address acquirer, when acquires the address, refers to said data setting area management table, and detects the use-condition of the data setting area corresponding to the acquired address from said data setting area management table; and said lender, when the detected use-condition is under the condition of deletion of data, informs the application program that there is no data for which an access is requested by the application program.

12. A data management apparatus according to Claim 8, wherein said data setting area management table holds link information related to a link between data setting areas about a data held by the plurality of data setting areas.

13. A data management apparatus according to Claim 8, wherein said data setting area management table, when a data stored in a data setting area is relocated to other data setting area, holds, as relocation condition information, the information of the data setting area of a destination of the relocation corresponding to the information related to the use-condition of the data setting area of a source of the relocation.

14. A data management apparatus according Claim 8, wherein a single or plural data setting areas compose a data storage area for storing data; a size of the data storage area is defined depending on the number of data setting areas for composing the data storage area; said data setting area management table holds a frequency data summing up the number of times of allocation of data into the data setting area generated by addition of data and the number of times of release of data setting area generated by deletion of data, according to the size of the data storage area; and said allocation controller, when said data field has at least one of continuous empty areas and there is no continuous empty area which meets the a size of a data requested to be added, determines at least one of data setting areas for storing the data requested to be added on the basis of the frequency data.

15. A data management apparatus for managing a plurality of data which are used in order to execute an application program for providing services related to communication by a switching system, comprising:

a data field storing the plurality of data, said data field is composed of a plurality of data setting areas, each data in said data field is stored by a single or plural data setting areas according to a size of data;

a data setting area management table storing information related to the use-condition of each data setting area;

an allocation controller referring to said data setting area

management table, and determining at least one of empty data setting areas in order to allocate a data requested to be added; and

an adder storing the data requested to be added in at least one of the empty data setting areas which is determined by said allocation controller.

16. A method for managing a plurality of data which are used in order to execute an application program for providing services related to communication by a switching system, comprising steps of:

storing the plurality of data into a data field;

acquiring an address of the data in the data field for which an access is requested by the application program;

storing at least one of pointer records having the acquired address and a pointer corresponding to the acquired address into a lending pointer table; and

reading out the pointer from said lending pointer table and lending the read pointer to the application program.

17. A method according to Claim 16, further comprising steps of:

receiving the lent pointer from the application program;

reading out the address corresponding to the lent pointer from the lending pointer table;

reading out the data storing the read address from said data field; and

giving the read data to the application program.

18. A method according to Claim 17, wherein the data field is composed of a plurality of data setting areas, each data in the data field is stored by a single or plural data setting areas according to a size of data, and the method further comprises steps of:

storing information related to the use-condition of each data setting area into a data setting area management table;

referring to the data setting area management table, and determining at least one of empty data setting areas in order to allocate a data requested to be added; and

storing the data requested to be added into at least one of empty data setting areas which is determined.

19. A method for managing a plurality of data which are used in order to execute an application program for providing services related to communication by a switching system, comprising steps of:

storing the plurality of data into a data field, the data field is composed of a plurality of data setting areas, each data in said data field is stored by a single or plural data setting areas according to a size of data;

storing information related to the use-condition of each data setting area into a data setting area management table;

referring to the data setting area management table, and determining at least one of empty data setting areas in order to

allocate a data requested to be added; and

storing the data requested to be added into at least one of empty data setting areas which is determined.

20. A computer readable medium stores a program for managing a plurality of data which are used in order to execute an application program for providing services related to communication by a switching system, the program comprising steps of:

storing the plurality of data into a data field;

acquiring an address of the data in the data field in which an access is requested by the application program;

storing at least one of pointer records having the acquired address and a pointer corresponding to the acquired address into a lending pointer table; and

reading out the pointer from said lending pointer table and lending the read pointer to the application program.

21. A computer readable medium according to Claim 20, wherein the program further comprising steps of:

receiving the lent pointer from the application program;

reading out the address corresponding to the lent pointer from the lending pointer table;

reading out the data storing the read address from said data field; and

giving the read data to the application program.

22. A computer readable medium according to Claim 20, wherein



the data field is composed of a plurality of data setting areas, each data in the data field is stored by a single or plural data setting areas according to a size of data, and the program further comprises steps of:

storing information related to the use-condition of each data setting area into a data setting area management table;

referring to the data setting area management table, and determining at least one of empty data setting areas in order to allocate a data requested to be added; and

storing the data requested to be added into at least one of empty data setting areas which is determined.

23. A computer readable medium storing a program for managing a plurality of data which are used in order to execute an application program for providing services related to communication by a switching system, the program comprising steps of:

storing the plurality of data into a data field, the data field is composed of a plurality of data setting areas, each data in said data field is stored by a single or plural data setting areas according to a size of data;

storing information related to the use-condition of each data setting area into a data setting area management table;

referring to the data setting area management table, and determining at least one of empty data setting areas in order to allocate a data requested to be added; and

storing the data requested to be added into at least one of  
empty data setting areas which is determined.

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